



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/786,839

02/25/2004

Parviz Tayebati

15436.1248.3.1

2957

22913

7590

01/13/2009

Workman Nydegger
1000 Eagle Gate Tower
60 East South Temple
Salt Lake City, UT 84111

EXAMINER

VAN ROY, TOD THOMAS

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

01/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/786,839	Applicant(s) TAYEBATI ET AL.	
	Examiner TOD T. VAN ROY	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-11 and 13-23 is/are pending in the application.
- 4a) Of the above claim(s) 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-11 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 13 and 17-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/22/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The examiner acknowledges the amending of claim 13 and the addition of claim 23.

Election/Restrictions

Newly submitted claim 23 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claim 23 describes an alternate embodiment in which a diffraction grating is not used, resulting in a prismatic beam steering device.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 23 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Objections

Claims 13 and 17-22 are objected to because of the following informalities:

Claim 13 reads "the first face of the first prism is parallel to the first face of the first prism", and is believed to more correctly read "the first face of the first prism is parallel to the first face of the **second** prism".

Appropriate correction is required.

Response to Arguments

Applicant's arguments filed 08/28/2008 have been fully considered but they are not persuasive.

With respect to claims 8-11 and 14-16:

The Applicant has argued that the etalon of Frankel does not correct for any aberrations introduced by the grating prism combination and hence does not restore quality and shape of light from the lasers.

The Examiner does not agree. As the Applicant has pointed out (Remarks, pg.7) the prism (#22) is used to change the effective wavelength of light in the grating by adjusting the refractive index ([0023]). The etalon is then used to narrow the linewidth and stabilize the emission wavelength ([0024]). The Applicant's characterization of the filtering function of the etalon is believed to be correct, but this function can also be considered to correct for aberrations in prism/grating #22. The quality and shape from #22 is that of a widened spectrum of light. Etalon #26 then reduces the spectrum and stabilizes the emission wavelength. This is a corrective feature used to ensure proper system output by making changes to the input from the prism #22. Therefore, etalon #26 can be considered to correct for aberrations and restore the quality and shape (spectrum) of the light produced.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 8-11, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frankel et al. (US 2003/0193974).

With respect to claim 8, Frankel teaches a system for generating light at a variety of wavelengths and directing the same along a common axis, comprising: a plurality of tunable lasers ([0008]), each of the tunable lasers having a different base wavelength and being tunable therefrom (fig.4, [0033]), and each of the tunable lasers being spatially offset from on another (fig.2), a grating for receiving the light from each of the spatially offset tunable lasers (fig.2 #24) and directing the same along a common axis (fig.2 common beam axis towards fiber #18), wherein the grating is configured so that when each of the spatially offset tunable lasers is radiating at its base wavelength, the grating redirects the light from each of the spatially offset tunable lasers along the common axis (shown in fig.2), a first thermo-optic prism ([0023]) for steering the light from each of the spatially offset tunable lasers (directs light from lasers to grating, and from grating towards the fiber) so that when the spatially offset tunable lasers are tuned so as to generate light at an adjusted wavelength which is different from its base wavelength, the first thermo-optic prism will direct the light from each of the spatially

Art Unit: 2828

offset tunable lasers into the grating at an angle which compensates for the difference between the adjusted wavelength and the base wavelength ([0023], prism is tuned, which would adjust the refractive index and steer the beams appropriately, also, the device is designed to direct all wavelengths into the fiber, so the steering must be present for the invention to function) so that the light from that laser will emerge from the grating along the common axis (shown in fig.2), and an etalon (fig.2 #26, [0024], etalon being a transparent plate, taught to be tunable) for correcting an aberration introduced by the first thermo-optic prism in order to restore the quality of the light from each of the spatially offset tunable lasers ([0024], corrects for wavelength stabilization and improves the quality of the linewidth). Frankel does not teach the etalon to be of the prism type and then both of the thermo-optic prisms to be located before the grating, or the first prism to have a thermistor for temperature monitoring. It would have been obvious to one of ordinary skill in the art to utilize a thermo-optic prism for the etalon as this is one of two types of etalon construction and would allow for the wavelength tuning taught by Frankel, as well as to place both prisms prior to the grating as a matter of engineering design choice, not affecting the overall operation of the system (see MPEP – 2144.04 IV C – Rearrangement of Parts). It would also have been obvious to make use of a temperature monitoring device, such as a common thermistor, on the first prism of Frankel in order to make and monitor the adjustments to the refractive index as Frankel has disclosed.

With respect to claim 9, Frankel teaches a collimating lens positioned after the plurality of tunable lasers and before the first thermo-optic prism (fig.2 #13).

With respect to claim 10, Frankel teaches a focus lens positioned after the grating (fig.2 #16).

With respect to claim 11, Frankel teaches an optical fiber for receiving the light from the grating (fig.2 #18).

With respect to claims 14-15, Frankel teaches the first thermo-optic prism further comprises adjustment means for adjusting the temperature of the first thermo-optic prism so as to adjustably steer the optical beam ([0026]).

With respect to claim 16, Frankel teaches the system outlined in the rejection to claim 1 above, including the use of a plurality of diode lasers. Frankel does not teach the use of 12 lasers. It would have been obvious to one of ordinary skill in the art at the time of the invention to choose an appropriate number of diodes, 12 or otherwise, in order to fit the desired power/WDM requirements of the system.

Allowable Subject Matter

Claims 13 and 17-22 would be allowable if the claim objection outlined above were corrected.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TOD T. VAN ROY whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TVR/

/Minsun Harvey/
Supervisory Patent Examiner, Art Unit 2828